

A Simplified Approach to Cloud Masking with VIIRS in the S-NPP / JPSS era

Gary J. Jedlovec and Frank J. Lafontaine

Submission for AGU Fall Meeting 2014

Earth and Space Informatics (IN001): Space-based, Operational Global Earth Observations
from S-NPP and JPSS

The quantitative detection of clouds in satellite imagery has a number of important applications in weather analysis. The proper interpretation of satellite imagery for improved situational awareness depends on knowing where the clouds are at all times of the day. Additionally, many products derived from infrared measurements need accurate cloud information to mask out regions where retrieval of geophysical parameters in the atmosphere or on the surface are not possible. Thus, the accurate detection of the presence of clouds in satellite imagery on a global basis is important to the product developers and the operational weather community to support their decision-making process. This abstract describes an application of a two-channel bispectral composite threshold (BCT) approach applied to VIIRS imagery. The simplified BCT approach uses only the 10.76 and 3.75 micrometer spectral channels in two spectral tests; a straightforward infrared threshold test with the longwave channel and a shortwave minus longwave channel difference test. The key to the success of this approach as demonstrated in past applications to GOES and MODIS data is the generation of temporally and spatially dependent thresholds used in the tests from a previous number of days at similar observations to the current data. The presentation will present an overview of the approach and intercomparison results with other satellites, methods, and against verification data.